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A Short Review of Early Detection of CAD in the Human Heart

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Abstract: The present paper gives a gentle review of the techniques used for early detection of CAD in human heart. Various top papers have been taken and various medical reports have been investigated for more than 15 years.

[Koen Nieman, Rotterdam, Feb 2003] of International Task Force for Prevention of Coronary Heart Disease worked for the CAD and suggested various ways to deal with the disease formation and its early detections. With the detection, it paved a crucial role for the CAD curing.The present research is based on MSCT use for CAD. The author also focused on coronary stent and bypass graph imaging .The implementation has demonstrated in vary lucid way beginning from chest pain to angiography. The authors compared their results with various parameters corresponding to different approaches of MSCT. Patient based diagnostic accuracy was performed by n-slice MSCT. The authors have used pre surgical cases.

[Leo P. Lawler; Harpreet K. Pannu; Elliot K. Fishman Am J Roentgenol. 2005] The work has been started in 2004, where the authors used the systematic ways to process the coronary diseases using imaging referenced in MDCT Evaluation of the Coronary Arteries, 2004: How We Do It-Data Acquisition, Postprocessing, Display, and Interpretation ,Leo P. Lawler; Harpreet K. Pannu; Elliot K. Fishman Am J Roentgenol. 2005; 184 (5): 1402-1412. ©2005

[American Roentgen Ray Society] The authors discussed and illustrated the recent usage of MDCT. The processing started with acquisition of data followed by post processing , display and its subsequent interpretations. The author then further emphasise the need and environment required for cardiac imaging.

[Andreas H. Mahnken, Georg Mühlenbruch, Guido Dohmen, MalteKelm, Joachim E. Wildberger, Rolf W. Günther] In the Review article on Current State of Non-Invasive Coronary MSCT Angiography, the authors commented on Multi slice spiral computed tomography rapidly grown and used for clinical trials since 1988. The latest MSCT scanners provide very high speed imaging which proves relevant and applicable to all aspects of problems related to coronary artery. Myocardial and pericardial aspects have also been explored.

[Biomedical Imaging and Intervention Journal REVIEW ARTICLE, Diagnostic value of SPECT, PET and PET/CT in the diagnosis of coronary artery disease] authored by Al Moudi M1, Sun Z1, Lenzo N21: A systematic review has been done for CAD. The work has been done for CAD also in the Discipline of Medical Imaging, Curtin University of Technology, Perth, Western Australia, Australia.

The authors have investigated SPECT, PET and PET/CT to investigate their diagnostic values. The authors have used existing medical imaging archives and seen over twenty four years of publications. Sensitivity based studies have been made and analyzed by using chi-square test. PET have shown highest diagnostic value for diagnosis of CAD.

[CT of Coronary Artery Disease,U. Joseph Schoepf, MD Christoph R. Becker, MD Bernd M. Ohnesorge, PhD E. Kent Yucel, MD,Published online 10.1148/radiol.2321030636 Radiology 2004; 232:18–37,Volume 232 Number 1 CT of Coronary Artery Disease]

As the number of patients with heart disease increases very rapidly ,so there is a great need to develop radiologic tools for non-invasive imaging of the coronary arteries. Now a day's computed tomographic (CT) techniques are available with high speed and spatial resolution with sophisticated electrocardiographic synchronization and robustness of use. According to the authors this technique gives very good result in coronary artery stenosis but cannot be used for routine diagnostic.

[International Journal of Computer Science & Information Technology (IJCSIT), Vol. 2, No. 1, Serials Publications, New Delhi, 2009]

An Effect of Spatial Filtering in Visualization of Coronary Arteries Imaging have been discussed. Dr. P.S. Hiremath1, Mr. Kodge B.G.2 1. Professor & Chairman, Department of Computer Sci. Gulbarga University, Gulbarga. State: Karnataka (INDIA)

In today's world, we use coronary angiography for the detection of problem in coronary artery. In the conventional coronary angiography the procedure is no doubt invasive but has small risk of myocardial infections, stroke and death. On the other hand different non-invasive tools such as electrocardiography, echocardiography, and nuclear imaging are also used by cardiologists. These tools also have limitations in visualizing and quantifying coronary artery stenosis and predict the stability of plaques. One another non-invasive visualization technique for coronary arteries is available which is known as Coronary magnetic resonance angiography (MRA).This tool is in a developing stage with limitations and cannot be used for routine clinical practice. If research is done on improving the diagnostic resolution and accuracy of coronary MRA then it will give better results as compare to other existing tools. This paper will helps to cardiologists to take the clear look of spatial filtered imaging of coronary arteries.

[Volume 3, Issue 8, August 2013 ,ISSN: 2277 128X International Journal of Advanced Researchin Computer Science and Software Engineering Research Paper Available online at: www.ijarcsse.com Calcification Detection in Coronary Arteries Using Image Processing Pankaj Goyal*KuldeepGoyalVipin Gupta Department of Electrical Engineering,Scientist, DIPR, Defence R & D Senior Scientist, Philips DCRUST Murthal,Organization (DRDO), Research, ManyataTechSonepat, India Delhi, India Bangalore, India]

This technique only highlight the regions containing coronary arteries by using vessel enhancement diffusion filter in to the two dimensional DICOM (Digital imaging and Communications in Medicine) images taken from the 64-slice Computed Tomography Scan data of the heart. As in this angiography we are using 64-slice CT scan machine so we get

better visualization of coronary arteries using a small dose of contrast .This was not possible with early techniques.
Standardized evaluation methodology and reference database for evaluating coronary artery centerline extraction algorithms Michiel Schaapa , et.al.

Authors have used CTA for reliable data in clinical practice. Various methods where used but no standard methodology has been published for the evaluation and comparison for various extraction algorithms used in coronary artery .The authors have used four fold mechanisms for establishing the bench mark for the extraction algorithms.

Conclusion: - The present paper made an attempt to investigate top papers of about last 15 years of various medical reports and papers. The present paper will give a boost to the budding researchers for further investigations for CAD in different scenario.

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